

February 19, 2003

Mr. Richard D. Pyke
Pyke Cremation Services
P. O. Box 206
Henryville, IN 47126

Dear Mr. Pyke:

Re: Exempt Construction and Operation Status,
019-17191-00111

The application from Pyke Cremation Services, received on February 6, 2003, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-1.1-3, it has been determined that the following emission unit, to be located at 209 South Ferguson, Henryville, Indiana, is classified as exempt from air pollution permit requirements:

- (a) A crematory incinerator for human remains and containers, with a maximum capacity of one hundred and fifty (150) pounds an hour, supplemented by natural gas at a rate of 1.5 million BTU/hr.

The following conditions shall be applicable:

- (1) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:
 - (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
 - (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.
- (2) Pursuant to 326 IAC 4-2-2, the crematory incinerator shall:
 - (1) consist of primary and secondary chambers or the equivalent;
 - (2) be equipped with a primary burner unless burning wood products;
 - (3) comply with 326 IAC 5-1 and 326 IAC 2;
 - (4) be maintained properly as specified by the manufacturer and approved by the commissioner;
 - (5) be operated according to the manufacturer's recommendations and only burn waste approved by the commissioner.
 - (6) comply with other state and/or local rules or ordinances regarding installation and operation

of incinerators.

Pyke Cremation Services
Henryville, Indiana

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- (7) be operated so that emissions of hazardous material including, but not limited to, viable pathogenic bacteria, dangerous chemicals or gases, or noxious odors are prevented;
- (8) not emit particulate matter in excess of five-tenths (0.5) pounds of particulate matter per one thousand (1000) pound of dry exhaust gas at standard conditions corrected to fifty percent (50%) excess air;
- (9) not create a nuisance or a fire hazard.

The operation of this incinerator shall be terminated immediately upon noncompliance with any of the above mentioned requirements.

This exemption is the first air approval issued to this source.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,
Original signed by Paul Dubenetzky

Paul Dubenetzky, Chief
Permits Branch
Office of Air Quality

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cc: File - Clark County
Clark County Health Department
Air Compliance - Ray Schick
Northwest Regional Office
Permit Tracking - Janet Mobley
Technical Support and Modeling - Michele Boner
Compliance Data Section - Karen Nowak

Indiana Department of Environmental Management Office of Air Quality

Technical Support Document (TSD) for an Exemption

Source Background and Description

Source Name: Pyke Cremation Services
Source Location: 209 South Ferguson, Henryville, IN 47126
County: Clark
SIC Code: 7261
Operation Permit No.: 019-17191-00111
Permit Reviewer: Madhurima D. Moulik

The Office of Air Quality (OAQ) has reviewed an application from Pyke Cremation Services relating to the construction and operation of a crematory incinerator.

Emission Units and Pollution Control Equipment

The source consists of the following permitted emission units and pollution control devices:

- (a) A crematory incinerator for human remains and containers, with a maximum capacity of one hundred and fifty (150) pounds an hour, supplemented by natural gas at a rate of 1.5 million BTU/hr.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
BL-01	Crematory Incinerator	20	1.5	2100	1100

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on received on February 6, 2003.

Emission Calculations

See Appendix A of this document for detailed emissions calculations.

Potential To Emit of Source Before Controls

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency.”

Pollutant	Potential To Emit (tons/year)
PM	0.13
PM-10	0.13
SO ₂	0.82
VOC	0.8
CO	1.1
NO _x	2.1
HAPs	Negligible

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of pollutants are less than the levels listed in 326 IAC 2-1.1-3(d)(1). Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3. An exemption will be issued.
- (b) The potential to emit (as defined in 326 IAC 2-7-1(29)) of any single HAP is less than ten (10) tons per year and/or the potential to emit (as defined in 326 IAC 2-7-1(29)) of a combination of HAPs is less than twenty-five (25) tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-1.1-3. An exemption will be issued.

County Attainment Status

The source is located in Clark County.

Pollutant	Status
PM-10	attainment
SO ₂	attainment
NO ₂	attainment
Ozone	maintenance
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Clark County has been designated as maintenance attainment for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21. See the State Rule

Applicability for the source section.

- (b) Clark County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21. See the State Rule Applicability for the source section.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

This is the first air approval issued to this source.

Federal Rule Applicability

- (a) The incinerator has a charge rate of less than fifty (50) tons per day. Therefore, it is not subject to the requirements of the New Source Performance Standard, 326 IAC 12, (40 CFR 60.50, Subpart E).
- (b) The crematory incinerator does not combust any hazardous waste as defined in 40 CFR 261. Therefore, the incinerator is not subject to the requirements of the National Emission Standards for Hazardous Air Pollutants (NESHAPs)(40 CFR 63, Subpart EEE).

State Rule Applicability - Entire Source

326 IAC 2-2 (Prevention of Significant Deterioration)

This source, located in an attainment area, has the potential to emit of all criteria pollutants less than 250 tons per year, and is not one of the twenty-eight (28) listed source categories. Therefore, 326 IAC 2-2 does not apply.

326 IAC 2-6 (Emission Reporting)

This source is located in Clark County and the potential to emit of VOCs is less than 10 tons per year, and that of all other criteria pollutants is less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

326 IAC 5-1 (Visible Emissions Limitations)

This source is located in Henryville in Clark County. Therefore, 326 IAC 5-2-1(1) applies.

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:

- (a) Opacity shall not exceed an average of forty percent (40%) any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9

or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))

The operation of the crematory incinerator will emit less than 10 tons per year of a single HAP or 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

State Rule Applicability - Individual Facilities

326 IAC 4-2-2 (Incinerators: requirements)

Pursuant to 326 IAC 4-2-2, the crematory incinerator shall:

- (1) consist of primary and secondary chambers or the equivalent;
- (2) be equipped with a primary burner unless burning wood products;
- (3) comply with 326 IAC 5-1 and 326 IAC 2;
- (4) be maintained properly as specified by the manufacturer and approved by the commissioner;
- (5) be operated according to the manufacturer's recommendations and only burn waste approved by the commissioner.
- (6) comply with other state and/or local rules or ordinances regarding installation and operation of incinerators.
- (7) be operated so that emissions of hazardous material including, but not limited to, viable pathogenic bacteria, dangerous chemicals or gases, or noxious odors are prevented;
- (8) not emit particulate matter in excess of five-tenths (0.5) pounds of particulate matter per one thousand (1000) pound of dry exhaust gas at standard conditions corrected to fifty percent (50%) excess air;
- (9) not create a nuisance or a fire hazard.

326 IAC 6-3-2 (Process Operations)

Incinerators are exempt from this rule. Therefore, 326 IAC 6-3-2 does not apply.

Conclusion

The construction and operation of this crematory incinerator shall be subject to the conditions of the Exemption No. 019-17191-00111.

Appendix A: Emissions Calculations

Natural Gas Combustion Only

MM BTU/HR <100

Small Industrial Boiler

Company Name: Pyke Cremation Services

Address City IN Zip: 209 South Ferguson, Henryville, Indiana

CP: 019-17191

Plt ID: 019-00111

Reviewer: Madhurima D. Moulik

Date: Feb 10, 2003

Heat Input Capacity
MMBtu/hr

Potential Throughput
MMCF/yr

1.5

13.1

Pollutant

	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	50.0 **see below	5.5	84.0
Potential Emission in tons/yr	0.0	0.0	0.0	0.3	0.0	0.6

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 3/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

See page 2 for HAPs emissions calculations.

Appendix A: Emissions Calculations

Natural Gas Combustion Only

MM BTU/HR <100

Small Industrial Boiler

HAPs Emissions

Company Name: Pyke Cremation Services

Address City IN Zip: 209 South Ferguson, Henryville, Indiana

CP: 019-17191

Plt ID: 019-00111

Reviewer: Madhurima D. Moulik

Date: Feb 10, 2003

HAPs - Organics

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	1.380E-05	7.884E-06	4.928E-04	1.183E-02	2.234E-05

HAPs - Metals

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	3.285E-06	7.227E-06	9.198E-06	2.497E-06	1.380E-05

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.

**Appendix A: Emission Calculations
Crematory Incinerator
Company Name: Pyke Cremation Services
Address: 209 South Ferguson, Henryville, IN 47126
Permit No.: 019-17191-00111
Reviewer: Madhurima D. Moulik
Date: February 11, 2003**

Pyke Cremation Services submitted the following emission data:

Southern Environmental Sciences, Inc. conducted emissions testing on a B & L Creamtion Systems human crematory incinerator at Foster Crematory located in Brooksville, Florida.

The process rate at the test incinerator was 150 lb/hr. The testing was conducted for NO_x, VOC and CO.

The emission factors for NO_x, VOC, PM and CO are based on the test results.

Nitrogen Oxides (NO_x)

Emission Factor = 0.44 lb/hr

PTE = 0.44 lb/hr x 8760 hr/yr x 1 ton/2000 lb = 1.9 tons/yr

Volatile Organic Compounds (VOC)

Emission Factor = 0.019 lb/hr.

PTE = 0.19 lb/hr x 8760 hr/yr x 1 ton/2000 lb = 0.8 tons/yr

Sulfur Dioxide (SO₂)

Emission factor from AP-42, Table 2.1-12 (2.5 lb/ton burned) used because of lack of test data.

SO₂ emissions = 150 lb/hr x 2.5 lb SO₂/ton x 1 ton/2000 lb

= 0.19 lb/hr

= 0.19 lb/hr x 8760 hr/yr x 1 ton/2000 lb

= 0.82 tons/yr.

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Carbon Monoxide (CO)

CO emissions = 0.111 lb/hr

= 0.111 lb/hr x 8760 hr/yr x 1 ton/2000 lb

= 0.49 tons/yr.

Particulate Matter (PM)

PM emissions = 0.029 lb/hr

= 0.029 lb/hr x 8760 hr/yr / 2000 lb/ton

= 0.13 tons/yr.

Hazardous Air Pollutants (HAPs)

There are no known HAP emissions from this incinerator

Appendix A: Emission Calculations

Total Emissions

Company Name: Pyke Cremation Services

Address: 209 South Ferguson, Henryville, IN 47126

Permit No.: 019-17191-00111

Reviewer: Madhurima D. Moulik

Date: February 11, 2003

Emissions in Tons per Year

Equipment	PM	PM-10	SO ₂	NO _x	VOC	CO
Furnace	Negligible	Negligible	Negligible	0.3	Negligible	0.6
Incinerator	0.13	0.13	0.82	1.9	0.8	0.49
Total(tons/yr)	0.13	0.13	0.82	2.1	0.8	1.1